

**Second Five-Year Review Report
JANESVILLE DISPOSAL FACILITY**

City of Janesville, Wisconsin

SEPTEMBER 2006

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Second Five-Year Review Report

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List of Acronyms

AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirement
BTEX	Benzene/Toluene/Ethylbenzene/Xylene Contaminant Mixture
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Difference
LFG	Landfill Gas collection and treatment equipment
MCL	Maximum Contaminant Level
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PAL	Preventative Action Limit
PCOR	Preliminary Close-Out Report
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SDWA	Safe Drinking Water Act
USGS	United States Geological Survey
VOC	Volatile Organic Compound
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources
WMWI	Waste Management of Wisconsin, Inc.
WPDES	Wisconsin Pollutant Discharge Elimination System

Executive Summary

The United States Environmental Protection Agency (U.S. EPA) Region V conducted the first five-year review of the remedy being implemented at the Janesville Disposal Facility Superfund Sites in the City of Janesville, Wisconsin. That review was completed in September 2001. This is the second five-year review for the Sites and is being conducted by the Wisconsin Department of Natural Resources (WDNR). The Janesville Disposal facilities consist of two Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) sites: the Janesville Ash Beds (WID 000712950) and the Old (1978) Janesville landfill (WID 980614044). In addition there are two adjoining Resource Conservation and Recovery Act (RCRA) sites: the Old (1963) Janesville Dump and the New (1985) Janesville Landfill. Impacts from all four sites are commingled and have been addressed together in the CERCLA actions. This review will examine significant site developments in recent years.

After a public comment period and notification in the Federal Register, both the Old Janesville Landfill and the Ash Beds sites were officially added to the National Priorities List (NPL) on September 21, 1984. A Remedial Investigation and Feasibility Study (RI/FS) were conducted at the site in 1987-88. This work determined that the greatest concern at the site was chlorinated compound groundwater contamination. A Record of Decision (ROD) was signed on December 29, 1989. The selected remedy at that time included a groundwater pump and treat system together with capping requirements for each of the landfills and various institutional controls.

In December 1991, U.S. EPA entered into consent decree with the City of Janesville and 60 other potentially responsible parties (PRP) for the final cleanup of the site. Since that time remedial actions conducted by the PRP group have addressed several areas of the site. Ash stockpiles at the Ash Bed site have been removed for disposal and the former beds have been clay capped, graded and seeded. The remaining landfills have also been clay capped and graded and have had active gas extraction systems installed in the 1978 and 1985 landfills. Final seeding of site occurred in spring 1997.

In January 1996 the PRP group, the WDNR and U.S. EPA agreed to delay implementation of the groundwater pump and treat system until completion of the capping activities and further review of the site groundwater data. Based on continued site review on September 17, 1997 an Explanation of Significant Differences (ESD) was signed by Region V Director of Superfund. The ESD stated that improvements in groundwater quality from 1987 to 1997 negated the need for an active groundwater remedy. By 1997 groundwater contaminant concentrations exceeding applicable rules and regulations were limited to two volatile organic chemicals (VOCs) at two downgradient sampling points.

In September 1997 U.S. EPA signed a Preliminary Close Out Report. The Close Out Report concluded that all construction activities at the site were completed and that a No Further Response Action decision is anticipated.

From 1997 to 2001 groundwater monitoring and site maintenance activities continued and U.S.

EPA issued the first five year review in September 2001. In reviewing all the available data the U.S.EPA and the WDNR concluded that the site remedies at that time were protective of human health and the environment. The agencies recommended that monitored natural attenuation continue at the site and that additional natural attenuation indicator parameters be monitored. The site visit determined that there were no significant problems in operation or maintenance of the sites making up the Janesville Disposal Facility.

Groundwater data collected from 2001 to 2006 continue to support the conclusion that the source control measures combined with natural attenuation are providing a satisfactory remedial action at the site. Groundwater conditions continue to improve at the rate anticipated by the agencies and the conditions at the site are protective of human health and the environment.

The remedy implemented at the Janesville Disposal Site is protective of human health and the environment for the short term. All immediate human health threats have been addressed, and there are no contaminant exposures of concern. The landfill cap and gas collection and treatment systems appear to be preventing exposure to waste materials and minimizing the flow of water through the waste mass. Natural attenuation processes appear to be controlling and reducing groundwater contamination. Institutional controls are in place and functioning as intended. These conditions allow the remedy at the site to be protective of the public health and the environment at this time.

In order for the remedy to be protective in the long-term, follow-up actions need to be taken to evaluate the potential need for additional studies of the Parker Pen property, to evaluate existing ICs, and to ensure that the ICs are effective and in compliance with land use restrictions. Long-term protectiveness will be ensured by maintaining effective ICs (on and off the property), as well as maintaining the remedy components. Long-term protectiveness will be achieved by first maintaining ICs on the property, and, second, once the groundwater reaches cleanup levels. In the interim groundwater ICs are needed off of the source property (e.g., groundwater protection zone, well-drilling restrictions) to prevent exposure to contaminants until groundwater cleanup standards are achieved. While the property use restrictions addressed in the document, "Declaration of Restriction on Use of Real Property", are adequate for the short term, an enforceable deed restriction in the proper form is necessary to fully implement the ROD and ensure long-term protectiveness.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name (from WasteLAN): Janesville Old Landfill/Janesville Ash Beds		
EPA ID (from WasteLAN): WID980614044 WID000712950		
Region: 5	State: Wisconsin	City/County: City of Janesville Rock County
SITE STATUS		
NPL status: XX Final Deleted <input type="checkbox"/> Other (specify)		
Remediation status (choose all that apply): Under Construction XX Operating <input type="checkbox"/> Complete		
Multiple OUs? <input type="checkbox"/> YES X NO	Construction completion date: 06 / 26 / 1997	
Has site been put into reuse? <input type="checkbox"/> YES XX NO		
REVIEW STATUS		
Lead agency: <input type="checkbox"/> EPA XX State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency		
Author(s) name: Michael Schmoller		
Author(s) title: Remedial Project Manager	Author(s) affiliation: WDNR	
Review period: 09/25/2001 to 09/01/2006		
Date(s) of site inspection: September 7, 2006		
Type of review: <div style="display: flex; justify-content: space-between; font-size: small;"> X Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead </div> <div style="display: flex; justify-content: space-between; font-size: small;"> <input type="checkbox"/> Regional Discretion </div>		
Review number: 1 (first) XX 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other(specify)		
Triggering action: <div style="display: flex; justify-content: space-between; font-size: small;"> <input type="checkbox"/> Actual RA Onsite Construction at OU # _____ Construction Completion (PCOR) <input type="checkbox"/> Actual RA Start at OU# _____ XX Previous Five-Year Review Report </div> <input type="checkbox"/> Other (specify)		
Triggering action date (from WasteLAN): 09/27/2001		
Due date (five years after triggering action date): 09/27/2006		

["OU" refers to operable unit.]

Five-Year Review⁸ Summary Form cont'd.

Issues:

1. Verify that contaminant concentrations continue to decline and that cleanup goals are still attainable;
2. Continue to implement proper O&M of source control measures;
3. PCE concentrations have not decreased below the MCL at well W6, as projected in the first five year review;
4. Evaluate the effectiveness of ICs.

Recommendations and Follow-up Actions:

1. Continue to implement the monitored natural attenuation groundwater remedy;
2. Continue to implement the O&M Plan and submit progress reports;
3. Evaluate the potential need for additional studies of the Parker Pen property;
4. Evaluate the effectiveness of ICs

Protectiveness Statement(s): The remedy implemented at the Janesville Disposal Site is protective of human health and the environment for the short term. All immediate human health threats have been addressed, and there are no contaminant exposures of concern. The landfill cap and gas collection and treatment systems appear to be preventing exposure to waste materials and minimizing the flow of water through the waste mass. Natural attenuation processes appear to be controlling and reducing groundwater contamination. Institutional controls are in place and functioning as intended. These conditions allow the remedy at the site to be protective of the public health and the environment at this time.

In order for the remedy to be protective in the long-term, follow-up actions need to be taken to evaluate the potential need for additional studies of the Parker Pen property, to evaluate existing ICs, and to ensure that the ICs are effective and in compliance with land use restrictions. Long-term protectiveness will be ensured by maintaining effective ICs (on and off the property), as well as maintaining the remedy components. Long-term protectiveness will be achieved by first maintaining ICs on the property, and, second, once the groundwater reaches cleanup levels. In the interim groundwater ICs are needed off of the source property (e.g., groundwater protection zone, well drilling restrictions) to prevent exposure to contaminants until groundwater cleanup standards are achieved. While the property use restrictions addressed in the document, "Declaration of Restriction on Use of Real Property", are adequate for the short term, an enforceable deed restriction in the proper form is necessary to fully implement the ROD and ensure long-term protectiveness.

Five-Year Review Report

I. Introduction

The purpose of the five-year review is to determine whether the remedy at the Janesville Disposal Facility site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and identifies recommendations to address them.

The WDNR is preparing this statutory Five-Year Review report pursuant to CERCLA § 121 and the National Contingency Plan (NCP). CERCLA § 121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with Section 104 or 106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f) (4) (ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above such levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The United States Environmental Protection Agency (U.S. EPA), Region 5, conducted the first statutory five-year review of the remedy implemented at the Janesville Disposal Facility in Janesville, Wisconsin. This review included a site visit in March 2001. (See Figure 1) That review was conducted by the Remedial Project Manager (RPM) for the entire site. This is the second five-year review. The triggering action for this review is the September 2001 signature of the first five-year review report. This review will examine significant site developments over the past five years, including:

- The continued protectiveness of the monitored natural attenuation approach to groundwater remediation
- Implementation of institutional land use controls
- Modification of the landfill gas extraction systems

As of the present time, hazardous substances remain on the Janesville sites, which preclude unlimited use and unrestricted exposure.

II. Site Chronology

Table 1: Chronology of Site Events	
Event	Date
Old 1978 Landfill opened /Ash beds opened	1963/1974
Old 1978 Landfill closure/Ash bed closure	January 1985/1985
Operational history: The 1978 site was municipal landfill with no liner or leachate collection. The Ash beds accepted industrial liquids and sludges during its operational life.	During primary operating history 1963-1985
NPL inclusion proposal	September 8, 1983
NPL finalization	September 21, 1984
RI/FS field investigation	Field work during 1987-88
Proposed Plan	Issued to public to begin comment period August 1989
Record of Decision	Signed December 29, 1989
Explanation of Significant Difference (ESD)	Signed September 17, 1997
Remedial Action Construction - Source Control	Completed Spring 1997
PCOR	Signed September 18, 1997
First Five Year Review Report	September 2001
Site Inspection (for second review)	September 7, 2006
Second Five Year Review Report	September 30, 2006

III. Background

Physical Characteristics

The Janesville Disposal Facility is underlain by sand and gravel outwash deposits and groundwater is present under water table conditions. The thickness of the sand and gravel varies from approximately 80-350 feet in the immediate vicinity of the site. The depth to groundwater varies with topographic elevation but is generally 80-100 feet below ground surface in the upland areas and within 10 feet in low lying areas near the Rock River. Groundwater flow is to the southwest discharging to the Rock River about 1800 feet from the site. The Rock River is a regional discharge point. Bedrock at the site was not encountered during the investigation but is expected to be Ordovician aged dolomites and sandstones and Cambrian aged sandstones at depths of 80-350 feet.

There are no municipal wells in the immediate vicinity of the site. There are also no private wells in the direction of contaminant plume migration to the southwest of the site. The Parker Pen facility formerly used a private well but has since been connected to the Janesville public system. All other known private wells in the area are either upgradient or sidegradient of the site.

Land and Resource Use

The Janesville Disposal facility is located on approximately 65 acres of land in section 24, Town of Janesville, Township 3 North, Range 12 East in Rock County, Wisconsin. The disposal site consists of a number of disposal locations including:

Janesville Old Dump (1963 Landfill) which operated from 1950 until 1963 and is approximately 15 acres in size. This site is an abandoned sand and gravel pit that was operated as a general refuse dump and accepted wastes of an unknown character. The 1963 site is not on the National Priorities List (NPL) but is included in the investigation and remediation of the area because of its proximity and because the Janesville Ash beds lie over the northwest portion of the fill.

Janesville Old Landfill (1978 Landfill) which operated from 1963-1978. This 18 acre site is on the NPL. The site accepted municipal and industrial wastes. This site was also an abandoned sand and gravel pit and has no liner of any kind.

Janesville New Landfill (1985 Landfill) which operated from 1978 to 1985. This 16 acre site is located on the east side of the property and accepted municipal and industrial wastes. This landfill is not on the NPL but is included again because of its proximity to the problem. This site has a clay liner and clay cap and a leachate collection system.

Janesville Ash Beds operated from 1974 to 1985 and accepted industrial liquids and sludges. The sludges were allowed to evaporate and dry and then were disposed in either the 1978 or New Janesville landfills.

During the years of the site's operation, the surrounding area has changed from rural to more urban in character.

Contamination History

The general disposal history of each site is summarized above. Field studies during the Remedial Investigation (RI) showed groundwater contamination to be the primary concern at the site. Known site history and subsequent RI field studies support the following conclusions:

The ash bed site was contributing to groundwater contamination exceeding both state and federal health based groundwater standards;

The 1963 Landfill is believed to be contributing little to the groundwater contamination;

The 1978 Landfill site was contributing to both organic and inorganic groundwater contamination;

The 1985 Landfill was contributing to groundwater contamination;

There appear to be no sources of groundwater contamination upgradient of the disposal area. Downgradient of the site, to the southwest, lays the Parker Pen site. Parker Pen is a known source of VOC groundwater contamination. Site studies have determined that part of the contamination seen in monitoring well MW6 is the result of past releases at the Parker Pen plant. Remedial efforts at Parker Pen have reduced contaminant concentrations in the groundwater.

Initial Response

In response to contaminant releases certain PRPs from 1986 to 1989 completed a remedial investigation and feasibility study (FS) for the disposal area. In August 1989 U.S. EPA published a Proposed Plan and on December 29, 1989 issued a ROD. In 1991 U.S. EPA and 61 settling parties joined in a Consent decree to complete the remedial design and remedial action at the site. In 1997 the remedial action construction activities were completed.

Basis for Taking Action

The results of the RI defined a contaminated groundwater plume at the disposal facility. The greatest concentration of VOCs were detected beneath and downgradient of the Ash Beds. Based on these groundwater concentrations, risks associated with the site exceeded the upper boundaries of the risk range as established in the National Contingency Plan (NCP).

IV. Remedial Actions

Remedy Selection

The FS was completed on August 4, 1989. Pursuant to Section 117 of CERCLA, U.S. EPA

published a notice of FS completion on August 15, 1989, and also released to the public a remedial action proposed plan. After evaluation of public comment, U.S. EPA selected a remedy for the site as embodied in the Record of Decision (ROD) signed on December 29, 1989.

The remedy consisted of both source control and groundwater control components. Source control featured landfill gas collection and treatment in select portions of the site, construction of a solid waste landfill cover over the site, and access and institutional controls to control future uses of the site. Also land use controls limit groundwater use between the disposal site and the Rock River. Groundwater control was to consist of collection and treatment of contaminated groundwater as proposed in the August 1989 Feasibility Study and continued groundwater monitoring. The WDNR did concur with this remedy.

The specific remedial objectives included:

Establish a landfill gas control system in compliance with the requirements of Chapter NR 506.08 of the Wisconsin Administrative Code (WAC) which regulates discharge of landfill gas.

Establish institutional controls, including deed restrictions, which limit future use of the landfill property and nearby groundwater.

Establish a landfill cap to control direct contact to waste materials and minimize water infiltration into the waste mass. The clay cap cover materials comply with Chapter NR 504.07 WAC, which is analogous to the federal Resource Conservation and Recovery Act (RCRA) Subtitle D cover for non-hazardous waste landfills.

Construct a groundwater extraction and treatment system consistent with the 1989 Feasibility Study proposal.

Establish a groundwater monitoring well network and conduct periodic sampling to evaluate improvement in groundwater quality.

Explanation of Significant Difference

In September 1997, U.S. EPA signed, with WDNR concurrence, an Explanation of Significant Difference (ESD) which allowed for a delay in implementing the proposed groundwater extraction and treatment system. Groundwater monitoring data collected from 1987 to 1997 showed that the combination of source control actions and natural attenuation mechanisms was controlling the groundwater contaminant plume at the site. Given this set of facts it was agreed to delay or subsequently cancel implementation of the groundwater pump and treat system. Data collected from 1997 to 2006 continue to support this decision.

Remedial Design

Remedial design and action/construction activities were privately funded via response to a consent

decree signed by U.S. EPA and the settling PRPs. A Final Remedial Design Report was submitted to U.S. EPA and WDNR in April 1996.

Remedy Construction Implementation

The remedial systems for the Janesville Disposal Facility were implemented as described below.

Institutional Controls

Institutional controls (ICs) are those non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land or resource use. Although it is U.S. EPA's expectation that treatment or engineering controls will be the primary mechanism in dealing with most of the threat posed by release of hazardous substances at a given site, ICs can play an important role in the function of a given remedy. ICs may be used when contamination is first discovered, and when remedies are ongoing and residual contamination remains at levels that do not allow for unrestricted land use and unlimited exposure, even though other cleanup measures may be operating. The National Contingency Plan (NCP) emphasizes that ICs are meant to supplement engineering controls, and that ICs will rarely be the sole remedy at a site.

For the Janesville site, the ROD made specific mention of ICs. In the ROD institutional controls are defined as deed and land use restrictions to assure that future use of the site does not increase the release or potential release of hazardous substances to the environment or become dangerous to the life or health of people.

To insure that these land use control measures have been put into place in February 2006 U.S. EPA requested the PRP group to conduct an IC audit of the site. In response the PRP provided a May 2006 report. That report included the following information:

The properties containing NPL sites as well as the adjoining waste disposal sites are owned by the City of Janesville. A copy of the title insurance was provided.

The city has filed a deed restriction on the properties. The deed restriction runs with the land and provides the following use limits:

There shall be no consumptive or other use of the groundwater underlying the property;

There shall be no use of, or activity at, the property that may interfere with the Work performed or to be performed under the Consent decree at the property, or any activity which may damage any remedial action component contracted for or installed pursuant to the Consent Decree or otherwise impair the effectiveness of any Work to be performed pursuant to the Consent Decree;

There shall be no installation, construction, removal or any use of any building, wells,

pipes, roads, ditches or any other structures at the property except as approved by the U.S. EPA as consistent with the Consent Decree;

There shall be no residential use of the property

In addition to the site specific controls, city ordinance controls the installation of private wells within the city limits. The City of Janesville surrounds the landfill property including all the land southwest (downgradient) between the disposal facility and the Rock River. This control on well installation prevents any water supply wells from being drilled in the area contaminated or potentially contaminated by the disposal facility.

The May 2006 report concluded that the combination of ICs and city ordinances have been successfully implemented and are working to protect the public health and the environment. While EPA is still reviewing the IC Study, EPA has noted in its review that one specific document, the "Declaration of Restriction on Use of Real Property" does not satisfy Wisconsin requirements for an environmental covenant or easement. EPA has recommended the execution of such a covenant between the City of Janesville and the State of Wisconsin. EPA's review of the IC Investigation/Study will be completed in early fiscal year 2007.

EPA is currently in the process of creating IC maps which depict the areas where use restrictions are required. The IC maps, once completed, will be publicly available and on EPA's Superfund Data Management Systems (SDMS) and will serve as an additional IC as an informational control.

Source Control Measures

Following the April 1996 design report, construction work started in June 1996. Construction work including landfill capping and gas recovery and treatment systems were completed in December 1996 and documented to the agencies in April 1997.

Groundwater Collection and Treatment

In accordance with the 1997 ESD, an active groundwater system has not been required at the site. Groundwater improvements are being accomplished through source control and natural attenuation.

Operation and Maintenance Experience

The primary source control measures are typical landfill operational tasks. These tasks include maintaining the clay cap, operating the gas extraction and leachate collection systems, monitoring for gas migration away from the waste fill, cleaning leachate lines and checking for waste settlement issues. The 1985 landfill has an active gas and leachate collection system. Based on a 2003 request from U.S. EPA the 1985 system was modified by replacing one of the extraction wells in 2005 to address gas migration concerns. In addition in 2005 fifteen active gas extraction wells were installed in the 1978 site. These wells supplanted the existing passive gas control

system. This new active system was brought on line in February 2005. These new wells were also requested by U.S. EPA to address the gas migration issue. Ongoing gas migration monitoring will be used to determine if the system changes have addressed the problem.

A review of past annual site reports indicate that the sites are undergoing routine inspections and maintenance by City of Janesville staff. It appears that source control measures are being adequately maintained.

Remediation Results to Date -Interpretation/Discussion

The groundwater monitoring data were evaluated using the Mann-Kendall Trend Test (WAC NR 746 Appendix A) to determine if trends in concentration over time have occurred at monitoring wells W30, W23, W6, and W5 from the beginning of compliance monitoring in April 1993 through March 2006. The Mann-Kendall Trend Test is used to evaluate a series of data and determine whether contaminant concentrations are increasing (upward trend), decreasing (downward trend), or stable (no trend identified). For the purposes of the trend tests, a 95 percent confidence interval was used to identify statistically significant results. In any cases where non-detected results were present, they were considered to be equal concentrations (to avoid an inappropriate trend resulting solely from varying detection limits) less than the lowest detected result.

Arsenic, vinyl chloride (VC), and 1,2-dichloroethene (1,2-DCE) either were never detected or have not been detected since April 1996 at these monitoring locations and these constituents are not discussed further herein. Barium is no longer a monitored constituent at monitoring wells W30 and W6 (pursuant to U.S. EPA's March 1997 modifications to the monitoring program). Although barium has been detected at monitoring wells W23 and W5, the concentrations are well below the MCL and PAL, and barium is not discussed further herein. A discussion of data trends for tetrachloroethene (PCE) and trichloroethene (TCE) at monitoring wells W30, W23, W6, and W5 is presented below.

PCE was not detected or was detected at estimated concentrations below the quantitation limit of the analysis at monitoring well W30 during the compliance monitoring events. A meaningful trend analysis of the PCE data at monitoring well W30 was not possible. With the exception of monitoring well W6, which shows no trend, the PCE data for the remaining monitoring wells (W23 and W5) show downward trends. The TCE data show a downward trend at all monitoring well locations, except monitoring well W6, which did not have a statistically significant trend.

PCE, TCE, 1,2-DCE, and VC are related in the biodegradation pathway for chlorinated ethenes. As biodegradation occurs, the concentrations of these compounds will become proportionally lower over time, though temporary concentration spikes in daughter products may occur. The VOC data for monitoring well W5, which is located in the downgradient area of the JAB,

provides an example of this relationship. PCE, TCE, and 1,2-DCE were detected during the RI at concentrations of 480 µg/L, 190 µg/L, and 87 µg/L, respectively. During the March 2001 monitoring event, PCE was detected at a concentration of 18 µg/L, TCE was detected at an estimated concentration of 2.7 µg/L, and 1,2-DCE was not detected. During the March 2006 monitoring event, PCE was detected at a concentration of 6.0 µg/L, TCE was detected at an estimated concentration of 0.63 µg/L, and 1,2-DCE was again not detected. Therefore, as the concentration of PCE decreases through biodegradation, a proportional decrease in TCE concentrations can be expected to continue to occur.

The ESD provided time estimates for the organic chemicals of concern (PCE and TCE) to achieve MCLs and PALs. The time estimates in the ESD were developed by performing regression analysis of groundwater monitoring data from the RI (1987), or the beginning of compliance monitoring for wells installed after the RI, to the March 1997 compliance monitoring event. For certain monitoring wells that initially exhibited an upward trend and then a downward trend, only the data from the downward trend were included in the regression analysis. The time estimates in the ESD for the chemicals of concern to achieve MCLs and PALs were 2006 and 2021, respectively. The MCLs and PALs used for the time estimates in the ESD were those current in 1997. At that time, the MCL for both PCE and TCE was 5 µg/L and the PAL for both PCE and TCE was 0.5 µg/L. The current MCLs and PALs for PCE and TCE have not changed since 1997.

Regression analyses of the PCE and TCE compliance monitoring data for monitoring wells exhibiting downward trends were performed to compare the time estimates in the ESD to current time estimates. The regression analyses of the compliance monitoring PCE and TCE data were performed in the same manner as the analyses performed for the Petition Report, which was referenced in the ESD. Trend lines were constructed using an exponential fit and were extrapolated forward to determine the estimated dates when the MCLs and PALs for PCE and TCE will be achieved. Regression analysis of the data indicate that, with the exception of monitoring well W6, the time estimates in the ESD generally are still valid (2008 and 2023 for the chemicals of concern to achieve the MCLs and PALs, respectively). Graphical displays of the data trend analyses are presented in Appendix A. It should be noted that significant variability may exist when forecasting the trend lines forward to the PAL. In many cases, the concentration of the PAL is in the asymptotic portion of the regression curve and the data from future monitoring events will influence the accuracy of the time estimates. Moreover, the concentrations of the PALs for PCE and TCE (0.5 µg/L) are not reliably measured by the analysis method and can only be reported as estimated concentrations. Concentrations reported near the detection limit of an analysis can exhibit significant variability.

The PCE data from monitoring well W6 indicate that the MCL and PAL will not be achieved within the time estimates noted in the ESD, and the data from this monitoring well has varied during the compliance monitoring period. The groundwater quality at monitoring well W6 is not representative of actual groundwater quality downgradient of the JDF, likely as a result of the solvent spill and solvent-impacted soil at Parker Pen. The March 2006 PCE concentrations for monitoring wells W5, W5A, W23, B104, and 60WR, which are located upgradient from monitoring well W6, were lower (or not detected) than the PCE concentration detected at monitoring well W6 in March 2006. PCE was not detected at monitoring well B104, which is on a direct flow line upgradient from monitoring well W6, indicating the possible presence of another PCE source downgradient of the JDF.

V. Progress Since the Last Review

This is the second five-year review report to be developed for the site. The first five-year review report made four recommendations, which are listed below, along with a status update for each recommendation:

1. Continue to implement the monitored natural attenuation groundwater remedy - It was anticipated during the first five-year review that MCL cleanup goals would be attained in 2006 and PALs attained in 2021. Although contaminant levels have generally continued to decline, not all contaminants have achieved MCLs. In particular, PCE concentrations at W6 continue to be about an order of magnitude higher than the MCL.
2. Amend the monitoring program to include additional performance indicators – In addition to the degradation byproducts of PCE and TCE, additional indicators required to verify the action of natural attenuation have been, and will continue to be, monitored.
3. Well W6 and Parker Pen – The first five-year review noted that, in the event that contaminant levels in well W6 rise and/or remain at persistent levels, additional studies may be required on the Parker Pen Property. Although the trend for TCE has been downward, PCE concentrations in W6 have not decreased significantly during the period between the first and second five year reviews.
4. Continue to implement the O&M Plan and submit progress reports – Progress reports have been submitted as specified.

VI. Five-Year Review Process

Administrative Components

In November 2005, U.S. EPA informed WDNR of the need to compile a second Five-Year Review Report for the Janesville site. Mr. Mike Schmoller of WDNR served as primary contact/Project Manager assigned to the Janesville site on behalf of WDNR.

Community Notification and Involvement

A public notice was placed in the Janesville Gazette, the primary local newspaper announcing the writing of this five year review. The public notice included a WDNR and USEPA contact person for more information about the process and provided an opportunity for any citizen to provide input into the drafting of the report.

Document Review

In preparing this report the WDNR relied on the technical documents shown in the reference section below. These few documents are just a small subset of the large number of documents produced for this site over the years of investigation and remediation.

Data Review

Groundwater data considered were discussed in previous sections of this report and the most recent groundwater data is summarized in Appendix A.

Site Inspection

The site was inspected by Mr. Mike Schmoller of the WDNR on September 7, 2006. See the attached inspection form.

Interviews

Mr. Schmoller interviewed Mr. Larry Buetzer, P.E., Senior Engineer, City of Janesville, on August 28, 2006. See attached interview report.

VII. Technical Assessment

- **Question A:** Is the remedy functioning as intended by the decision documents?
Yes, the combination of source control measures and natural attenuation are reducing contaminant concentrations. The rate of improvement in groundwater quality is similar to that which was predicted for the site. As required by the ROD, ICs have been implemented, and confirmed by the IC Investigation/Study.
- **Question B:** Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?
Yes, these items remain the same. There have been no changes in the toxicity data used to derive the most important groundwater quality standards for this site. Since there has not been in a change in groundwater quality standards, there have been no changes in the cleanup levels or remedial action objectives for this site. In addition there have been no changes in state or federal policy regarding where the groundwater quality standards

should be applied.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

None that either regulatory agency is aware of.

VIII. Issues

The following issues are identified for the JDF:

Issue	Currently Affects Protectiveness (Yes/No)	Affects Future Protectiveness (Yes/No)
Verify that contaminant concentrations continue to decline and that cleanup goals are still attainable.	No	Yes
Continue to implement proper O&M of source control measures.	No	Yes
PCE concentrations have not decreased below the MCL at well W6, as projected in the first five year review.	No	Yes
Evaluate the effectiveness of ICs.	No	Yes

IX. Recommendations and Follow-up Actions

The groundwater monitoring data from the past five years of compliance monitoring at the JDF clearly show that the groundwater quality continues to improve since remedial actions were implemented. In addition, monitoring of natural attenuation parameters and the presence of PCE and TCE degradation products verify that natural attenuation is still occurring at the JDF. However, unchanging contaminant concentrations downgradient of the Parker Pen facility warrant an evaluation of the potential need for additional studies in that area. Based upon the evaluations performed for this five year review, the following recommendations for follow-up action are made to assure that the JDF remedies remain protective:

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Yes/No)	
					Current	Future
Verify that concentrations continue to decline and that cleanup goals are still attainable.	Continue to implement the monitored natural attenuation groundwater remedy.	JDF PRP Group	USEPA	Ongoing	No	Yes
Implement proper O&M of source control measures.	Continue to implement the O&M Plan and submit progress reports.	JDF PRP Group	USEPA	Ongoing	No	Yes
PCE concentrations have not decreased below the MCL at well W6, as projected in the first five year review.	Evaluate the potential need for additional studies of the Parker Pen property.	USEPA	USEPA	9/30/2007	No	Yes

Evaluate the effectiveness of ICs.	Develop an IC action plan to address any shortcomings in ICs identified by the IC Investigation/Study. Include provisions for : A) evaluating the IC Study to assure that effective ICs have been implemented; B) implementing corrective measures if necessary; C) developing IC maps; and D) Ensuring that effective procedures are in place to ensure regular inspection, monitoring and enforcement of ICs at the site, and annual certification to EPA that ICs are in-place and effective.	USEPA	USEPA	3/31/2007	No	Yes
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X. Protectiveness Statement

The remedy implemented at the Janesville Disposal Site is protective of human health and the environment for the short term. All immediate human health threats have been addressed, and there are no contaminant exposures of concern. The landfill cap and gas collection and treatment systems appear to be preventing exposure to waste materials and minimizing the flow of water through the waste mass. Natural attenuation processes appear to be controlling and reducing groundwater contamination. Institutional controls are in place and functioning as intended. These conditions allow the remedy at the site to be protective of the public health and the environment at this time.

In order for the remedy to be protective in the long-term, follow-up actions need to be taken to evaluate the potential need for additional studies of the Parker Pen property, to evaluate existing ICs, and to ensure that the ICs are effective and in compliance with land use restrictions. Long-term protectiveness will be ensured by maintaining effective ICs (on and off the property), as well as maintaining the remedy components. Long-term protectiveness will be achieved by first maintaining ICs on the property, and, second, once the groundwater reaches cleanup levels. In the interim groundwater ICs are needed off of the source property (e.g., groundwater protection zone, well-drilling restrictions) to prevent exposure to contaminants until groundwater cleanup standards are achieved. While the property use restrictions addressed in the document, "Declaration of Restriction on Use of Real Property", are adequate for the short term, an enforceable deed restriction in the proper form is necessary to fully implement the ROD and ensure long-term protectiveness.

XI. Next Review

The next review will be completed within 5 years of the signature of this report.

REFERENCE MATERIALS

1. Five Year Groundwater Assessment Report, Janesville Disposal Facility, Janesville, Wisconsin, Conestoga - Rovers and Associates, August, 2006
2. Five Year Review Report, Janesville Ash Beds and Janesville Landfill National Priority Listing Sites and Adjoining sites or Janesville Disposal Facility, Janesville, Rock County, Wisconsin, United States Environmental Protection Agency, Region V, September 2001
3. Janesville Disposal Facility 2005 Annual Report, Shaw Environmental & Infrastructure, Inc, March 2006
4. Janesville Disposal Facility As-Built Documentation Landfill Gas Migration Project, City of Janesville Engineering Department, May 2005
5. Janesville Disposal Facility Case File, Wisconsin Department of Natural Resources, Remediation and Redevelopment Program, 2006
6. Landfill Gas Management Plan Janesville Disposal Facility City of Janesville, Wisconsin, Earth Tech, Inc, February 2005
7. Record of Decision: Janesville Ash Beds, United States Environmental Protection Agency Region V, December 29, 1989

INTERVIEW RECORD

Site Name: Janesville Disposal facility

EPA ID No.: WID000712950 and WID980614044

Subject: Five-Year Review Report/Site Status

Time: 11:00 am

Date: August 28, 2006

Type: Telephone

Contact Made By:

Name: Michael Schmoller

Title: Hydrogeologist

Organization: WDNR

Individuals Contacted:

Name: Larry Buetzer, P.E., Senior Engineer, City of Janesville

Summary of Conversation

We discussed the last five year history of the site. In that time there have been minimal to no problems associated with surface water control, site erosion, cap maintenance and groundwater monitoring schedules. The primary issue during this time frame was the potential for landfill gas migration from the 1978 site to the southwest. There were elevated methane readings in two gas probes southwest of the landfill. In response, beginning in the fall of 2005, fifteen vertical gas extraction wells were added to the site. There five deep wells and 10 shallower wells. The wells were connected to the existing blower for the gas system at the 1985 site. The wells were activated in February 2006 and appear to be controlling the migration concerns.

Site maintenance has been largely trouble free during this review period.

Site Inspection Checklist

I. SITE INFORMATION			
Site name: Janesville Disposal Facility		Date of inspection: September 7, 2006	
Location and Region: Town of Janesville, Wisconsin Region 5		EPA ID: WID980614044 WID000712950	
Agency, office, or company leading the five-year review: WDNR		Weather/temperature: Sunny, mild	
Remedy Includes: (Check all that apply) <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <input checked="" type="checkbox"/> Landfill cover/containment <input checked="" type="checkbox"/> Access controls <input checked="" type="checkbox"/> Institutional controls <input type="checkbox"/> Groundwater pump and treatment <input type="checkbox"/> Surface water collection and treatment <input type="checkbox"/> Other _____ </div> <div style="width: 45%;"> <input checked="" type="checkbox"/> Monitored natural attenuation <input type="checkbox"/> Groundwater containment <input type="checkbox"/> Vertical barrier walls </div> </div>			
Attachments: <input type="checkbox"/> Inspection team roster attached <input type="checkbox"/> Site map attached			
II. INTERVIEWS (Check all that apply)			
1. O&M site manager Larry Buetzer Project Coordinator August 28, 2006 <div style="display: flex; justify-content: space-between; margin-left: 100px;"> Name Title Date </div> Interviewed at site <input type="checkbox"/> at office <input checked="" type="checkbox"/> by phone Phone no. 608-755-3163 Problems, suggestions; See Interview Summary _____			
2. O&M staff Not applicable Not interviewed <div style="display: flex; justify-content: space-between; margin-left: 100px;"> Name Title Date </div> Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____ Problems, suggestions; <input type="checkbox"/> Report attached _____ _____			
3. Local regulatory authorities and response agencies (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply. Agency Not applicable _____ Contact _____ <div style="display: flex; justify-content: space-between; margin-left: 100px;"> Name Title Date Phone no. </div> Problems; suggestions; <input type="checkbox"/> Report attached _____ _____			
4. Other interviews (optional) <input type="checkbox"/> Report attached.			
III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)			

1.	O&M Documents <input type="checkbox"/> O&M manual <input type="checkbox"/> As-built drawings <input type="checkbox"/> Maintenance logs Remarks__Not reviewed	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date	<input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A
2.	Site-Specific Health and Safety Plan <input type="checkbox"/> Contingency plan/emergency response plan Remarks__Not reviewed	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date	<input type="checkbox"/> N/A <input type="checkbox"/> N/A
3.	O&M and OSHA Training Records Remarks__Not reviewed	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input type="checkbox"/> N/A
4.	Permits and Service Agreements <input type="checkbox"/> Air discharge permit <input type="checkbox"/> Effluent discharge <input type="checkbox"/> Waste disposal, POTW <input type="checkbox"/> Other permits Remarks__Not reviewed	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date	<input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A
5.	Gas Generation Records Remarks__Submitted to state as required	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	N/A
6.	Settlement Monument Records Remarks__Data submitted to state as required	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	N/A
7.	Groundwater Monitoring Records Remarks__Submitted to state as required	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input type="checkbox"/> N/A
8.	Leachate Extraction Records Remarks__Submitted to state as required	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	N/A
9.	Discharge Compliance Records <input type="checkbox"/> Air <input type="checkbox"/> Water (effluent) Remarks__NA	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date	<input type="checkbox"/> N/A <input type="checkbox"/> N/A
10.	Daily Access/Security Logs Remarks__Not reviewed	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date	<input type="checkbox"/> N/A
IV. O&M COSTS				

1.	O&M Organization <input type="checkbox"/> State in-house <input type="checkbox"/> Contractor for State <input type="checkbox"/> PRP in-house <input checked="" type="checkbox"/> Contractor for PRP <input type="checkbox"/> Federal Facility in-house <input type="checkbox"/> Contractor for Federal Facility <input type="checkbox"/> Other _____																																																												
2.	O&M Cost Records <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input type="checkbox"/> Funding mechanism/agreement in place Original O&M cost estimate Not reviewed <input type="checkbox"/> Breakdown attached <div style="text-align: center;">Total annual cost by year for review period if available</div> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">From _____</td> <td style="width: 20%;">To _____</td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td colspan="3"><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td colspan="3"><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td colspan="3"><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td colspan="3"><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td colspan="3"><input type="checkbox"/> Breakdown attached</td> </tr> </table>	From _____	To _____					Date	Date	Total cost	<input type="checkbox"/> Breakdown attached			From _____	To _____					Date	Date	Total cost	<input type="checkbox"/> Breakdown attached			From _____	To _____					Date	Date	Total cost	<input type="checkbox"/> Breakdown attached			From _____	To _____					Date	Date	Total cost	<input type="checkbox"/> Breakdown attached			From _____	To _____					Date	Date	Total cost	<input type="checkbox"/> Breakdown attached		
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3.	Unanticipated or Unusually High O&M Costs During Review Period Describe costs and reasons: <u> </u> O&M costs are not reviewed as part of the state oversight process _____ _____ _____ _____ _____																																																												
V. ACCESS AND INSTITUTIONAL CONTROLS <input type="checkbox"/> Applicable <input type="checkbox"/> N/A																																																													
A. Fencing																																																													
1.	Fencing damaged <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Gates secured <input type="checkbox"/> N/A Remarks_ Fencing maintained where located _____ _____																																																												
B. Other Access Restrictions																																																													
1.	Signs and other security measures <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A Remarks_ Signs in place _____ _____																																																												
C. Institutional Controls (ICs)																																																													
1.	Implementation and enforcement Site conditions imply ICs not properly implemented <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A Site conditions imply ICs not being fully enforced <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A Type of monitoring (e.g., self-reporting, drive by) U.S.EPA required 2006 implementation report																																																												

Frequency Once to date		Responsible party/agency Landfill PRP group		May 30, 2006		608-755-6135	
Contact Larry Buetzer		PRP Project Coordinator		Date		Phone no.	
Name		Title					
Reporting is up-to-date				X Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Reports are verified by the lead agency				X Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Specific requirements in deed or decision documents have been met				X Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Violations have been reported				<input type="checkbox"/> Yes	<input type="checkbox"/> No	X N/A	
Other problems or suggestions: <input type="checkbox"/> Report attached							
None							
2.	Adequacy	X ICs are adequate	<input type="checkbox"/> ICs are inadequate	<input type="checkbox"/> N/A			
Remarks _____							

D. General							
1.	Vandalism/trespassing	<input type="checkbox"/> Location shown on site map	X No vandalism evident				
Remarks _____							

2.	Land use changes on site	X N/A					
Remarks _None_____							

3.	Land use changes off site	X N/A					
Remarks _None of concern_____							

VI. GENERAL SITE CONDITIONS							
A. Roads		<input type="checkbox"/> Applicable	X N/A				
1.	Roads damaged	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> Roads adequate	<input type="checkbox"/> N/A			
Remarks Site gravel roads are little used _____							

B. Other Site Conditions							
Remarks The site looks ok. The side slopes are steep but the vegetative cover is adequate.							
VII. LANDFILL COVERS							
		<input type="checkbox"/> Applicable	N/A				

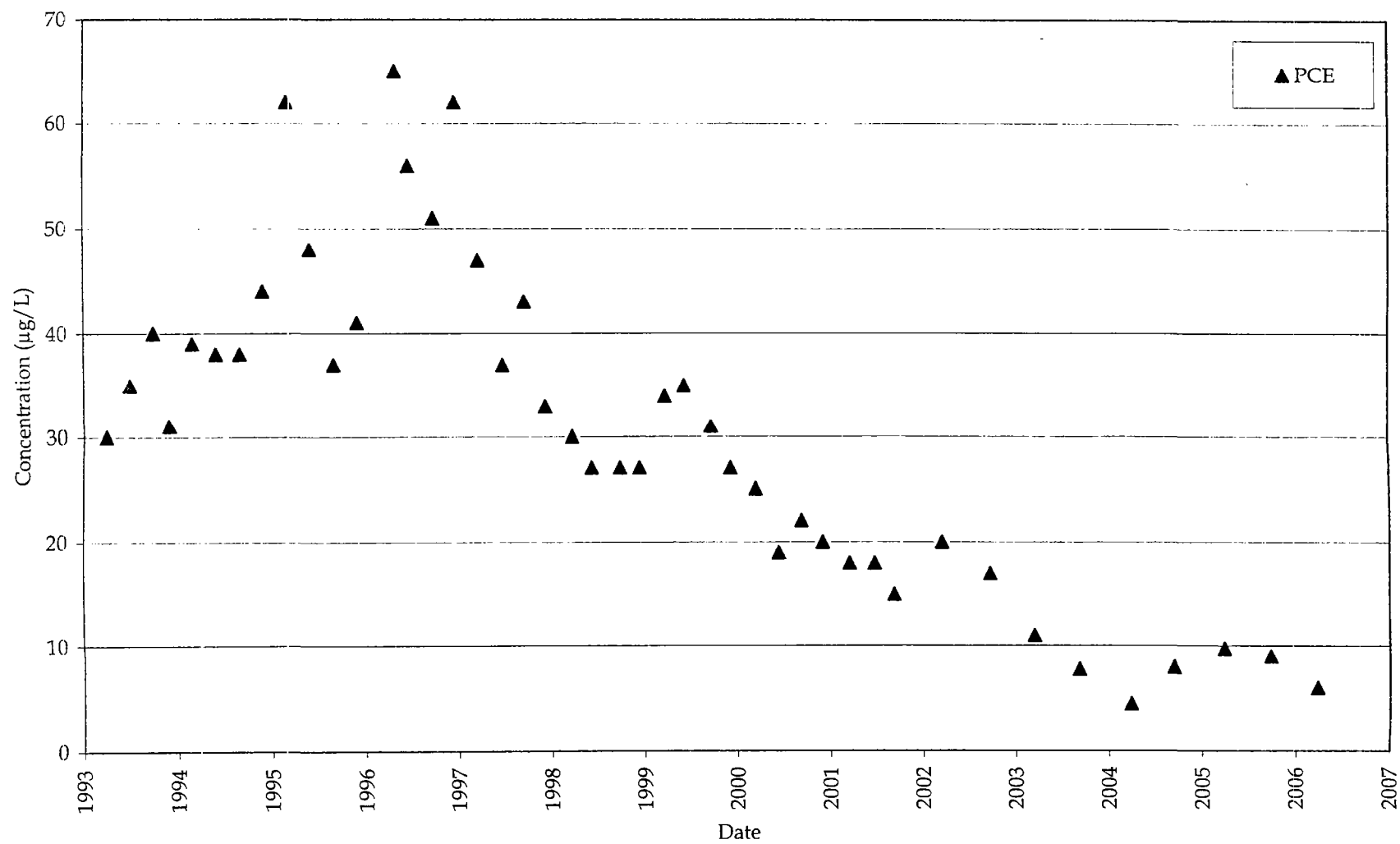
VIII. VERTICAL BARRIER WALLS <input type="checkbox"/> Applicable XX N/A	
IX. GROUNDWATER/SURFACE WATER REMEDIES <input type="checkbox"/> Applicable <input type="checkbox"/> N/A	
A. Groundwater Extraction Wells, Pumps, and Pipelines <input type="checkbox"/> Applicable X N/A	
1.	Pumps, Wellhead Plumbing, and Electrical <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells properly operating <input type="checkbox"/> Needs Maintenance X N/A Remarks _____ _____ _____
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks <u>Not applicable</u> _____ _____
3.	Spare Parts and Equipment <input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks <u>Not applicable</u> _____ _____
B. Surface Water Collection Structures, Pumps, and Pipelines <input type="checkbox"/> Applicable XX N/A	
C. Treatment System <input type="checkbox"/> Applicable X N/A	
1.	Treatment Train (Check components that apply) <input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation <input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers <input type="checkbox"/> Filters _____ <input type="checkbox"/> Additive (e.g., chelation agent, flocculent) _____ <input type="checkbox"/> Others _____ <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> Sampling ports properly marked and functional <input type="checkbox"/> Sampling/maintenance log displayed and up to date <input type="checkbox"/> Equipment properly identified <input type="checkbox"/> Quantity of groundwater treated annually _____ <input type="checkbox"/> Quantity of surface water treated annually _____ Remarks <u>No treatment used</u> _____ _____
2.	Electrical Enclosures and Panels (properly rated and functional) XX N/A Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____
3.	Tanks, Vaults, Storage Vessels X N/A X Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance Remarks _____ _____
4.	Discharge Structure and Appurtenances XX N/A Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____

5.	Treatment Building(s) <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input checked="" type="checkbox"/> Chemicals and equipment properly stored Remarks _____			
6.	Monitoring Wells (pump and treatment remedy) <input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____			
D. Monitoring Data				
8.	Monitoring Data <input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality			
9.	Monitoring data suggests: Slow remedial progress <input checked="" type="checkbox"/> Groundwater plume is effectively contained <input checked="" type="checkbox"/> Contaminant concentrations are declining			
D. Monitored Natural Attenuation Regression analysis of monitoring data from four site wells shows that the groundwater contaminants attributable to the site are declining in concentrations. The rate of improvement is consistent with that expected at the time that the ESD was approved.				
X. OTHER REMEDIES (Not applicable)				
XI. OVERALL OBSERVATIONS				
A.	Implementation of the Remedy			
B.	Adequacy of O&M O&M is being well done by the city			
C.	Early Indicators of Potential Remedy Problems None at this time.			
D.	Opportunities for Optimization None at this time			

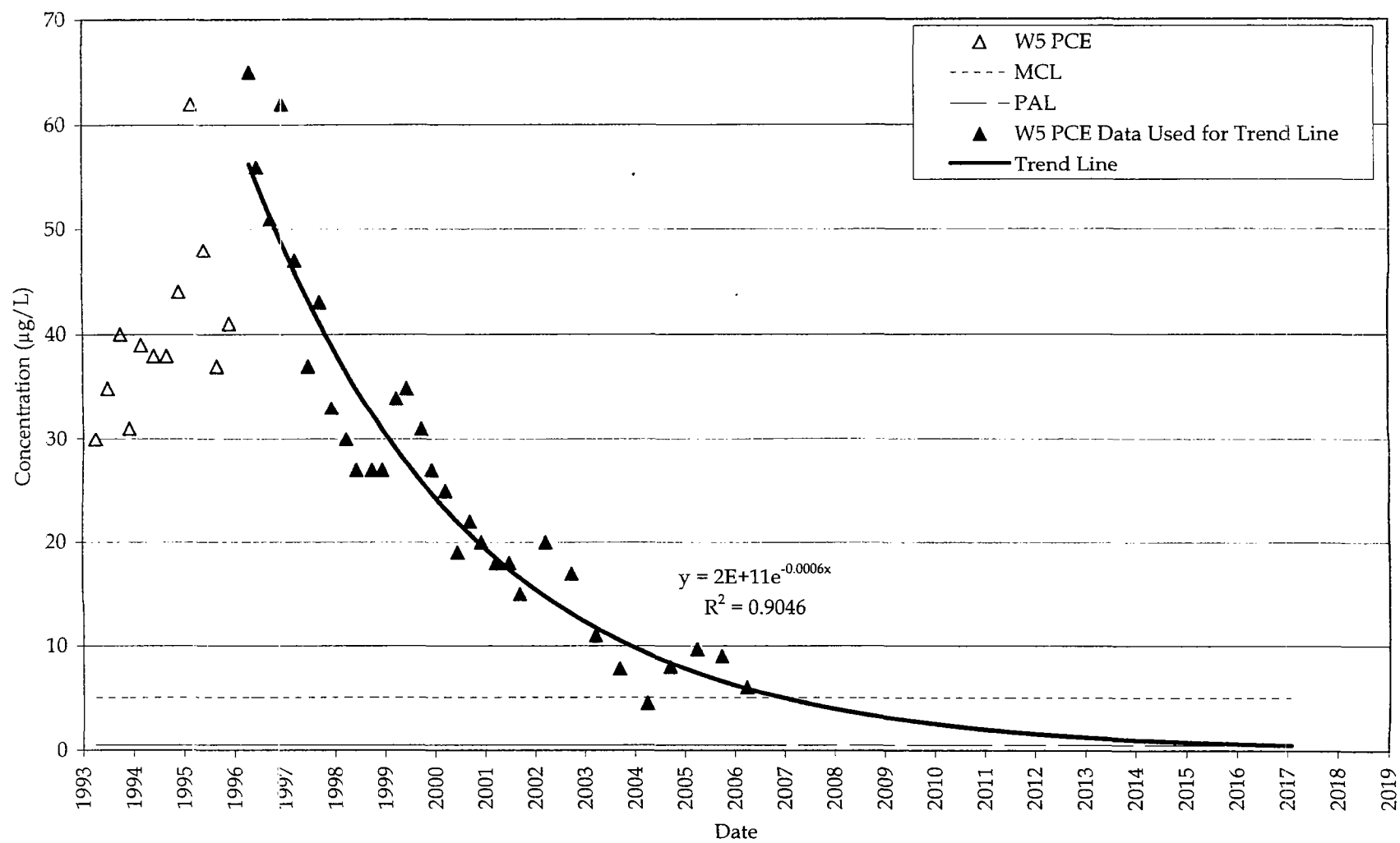


APPENDIX A

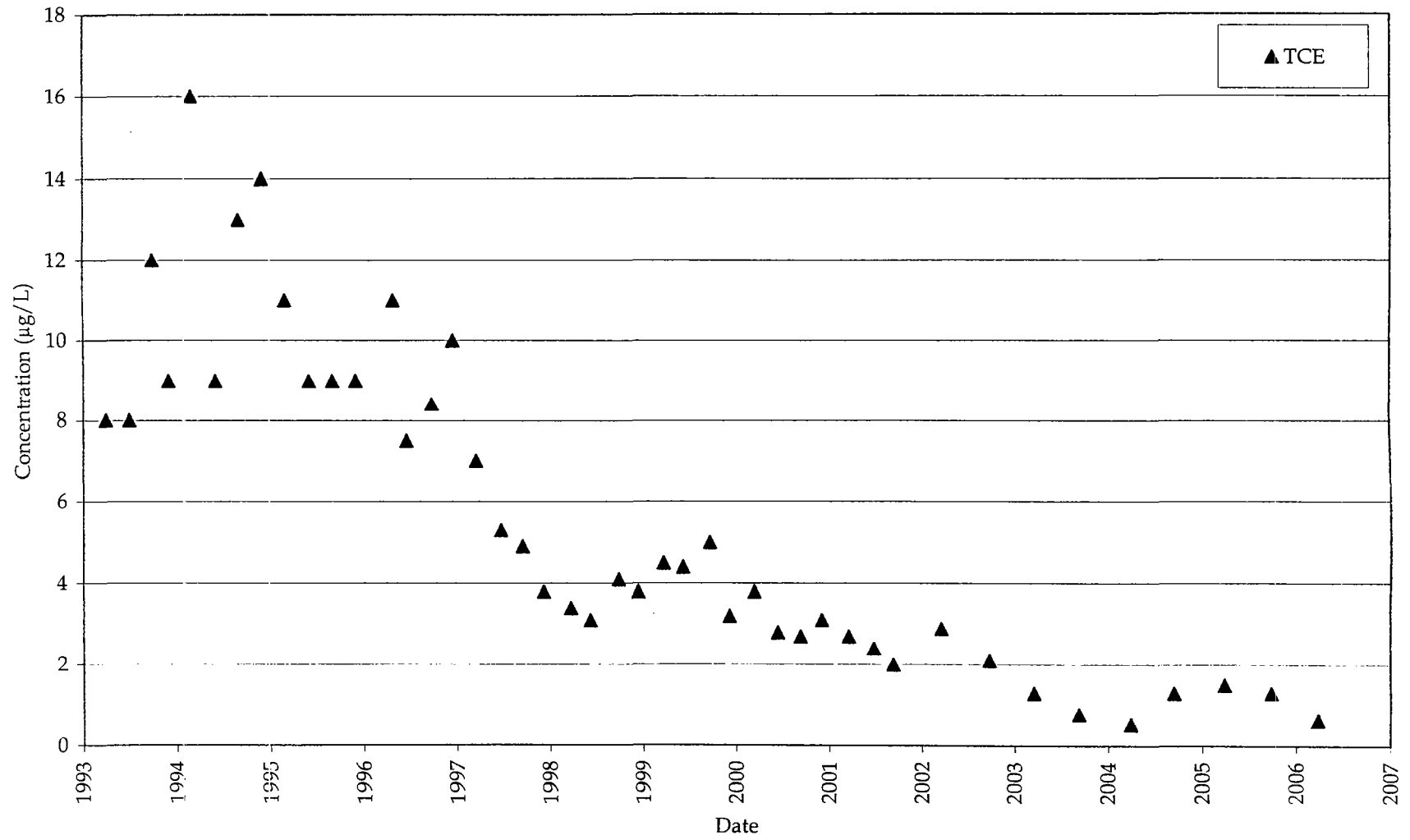
W5 Tetrachloroethene



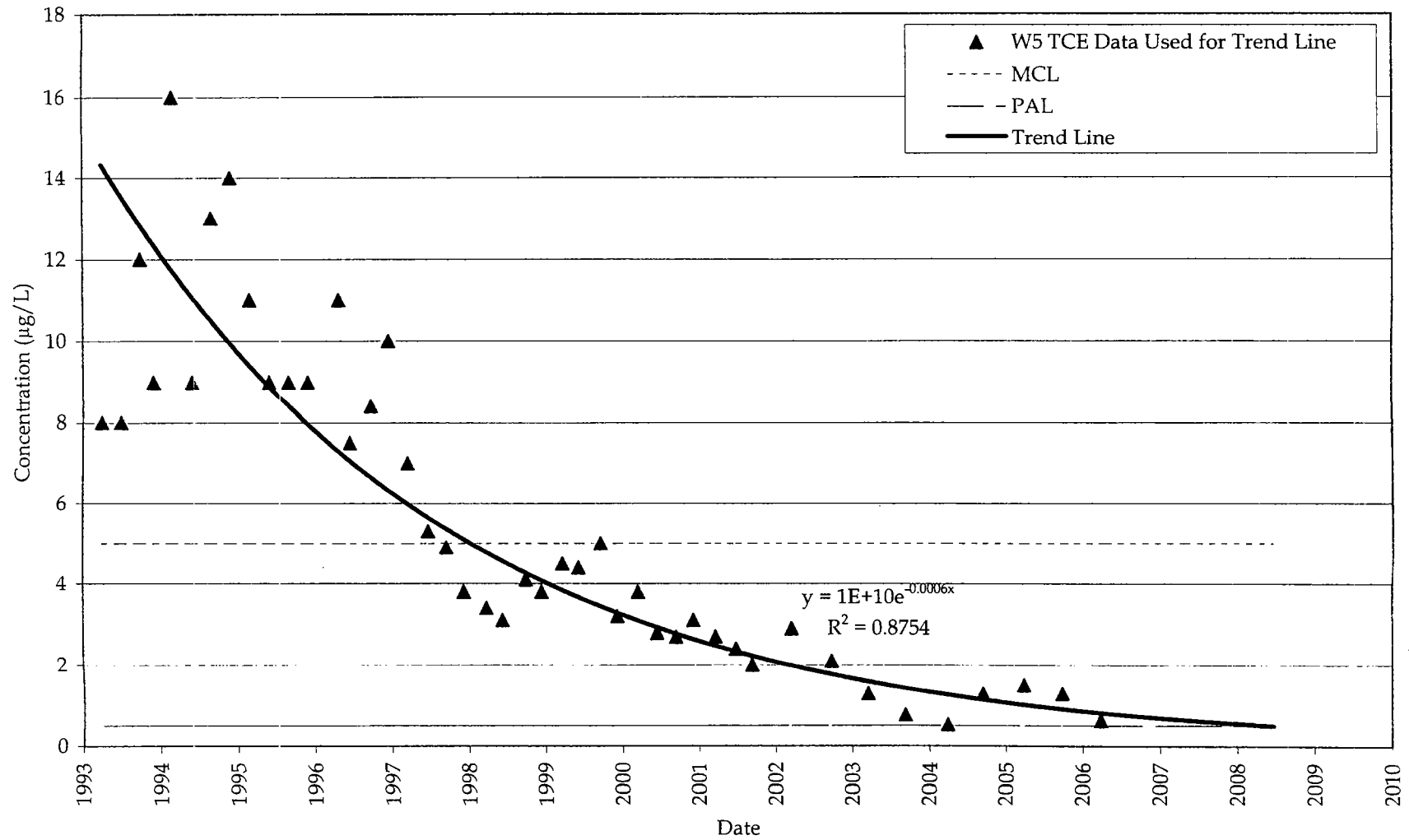
W5 Tetrachloroethene



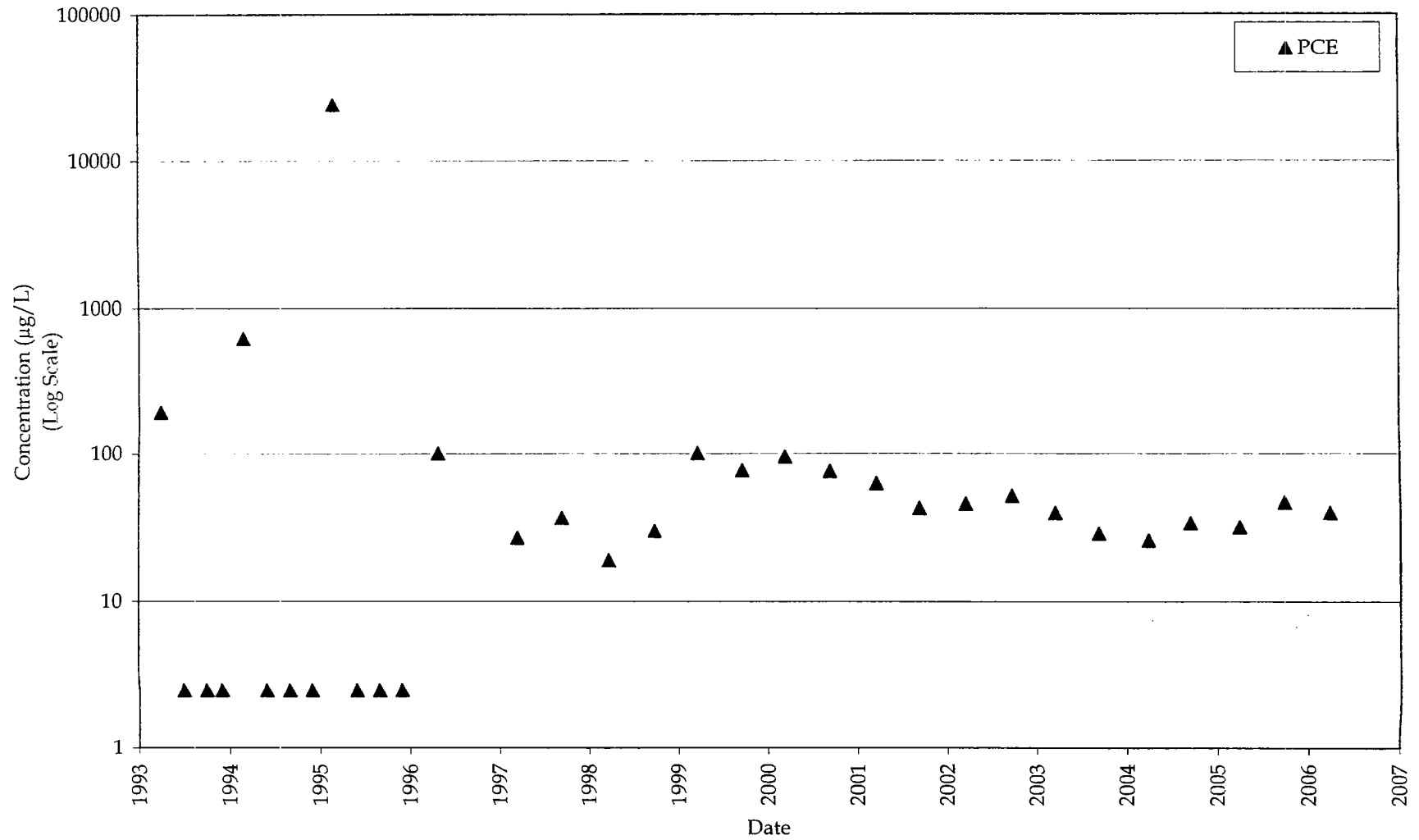
W5 Trichloroethene



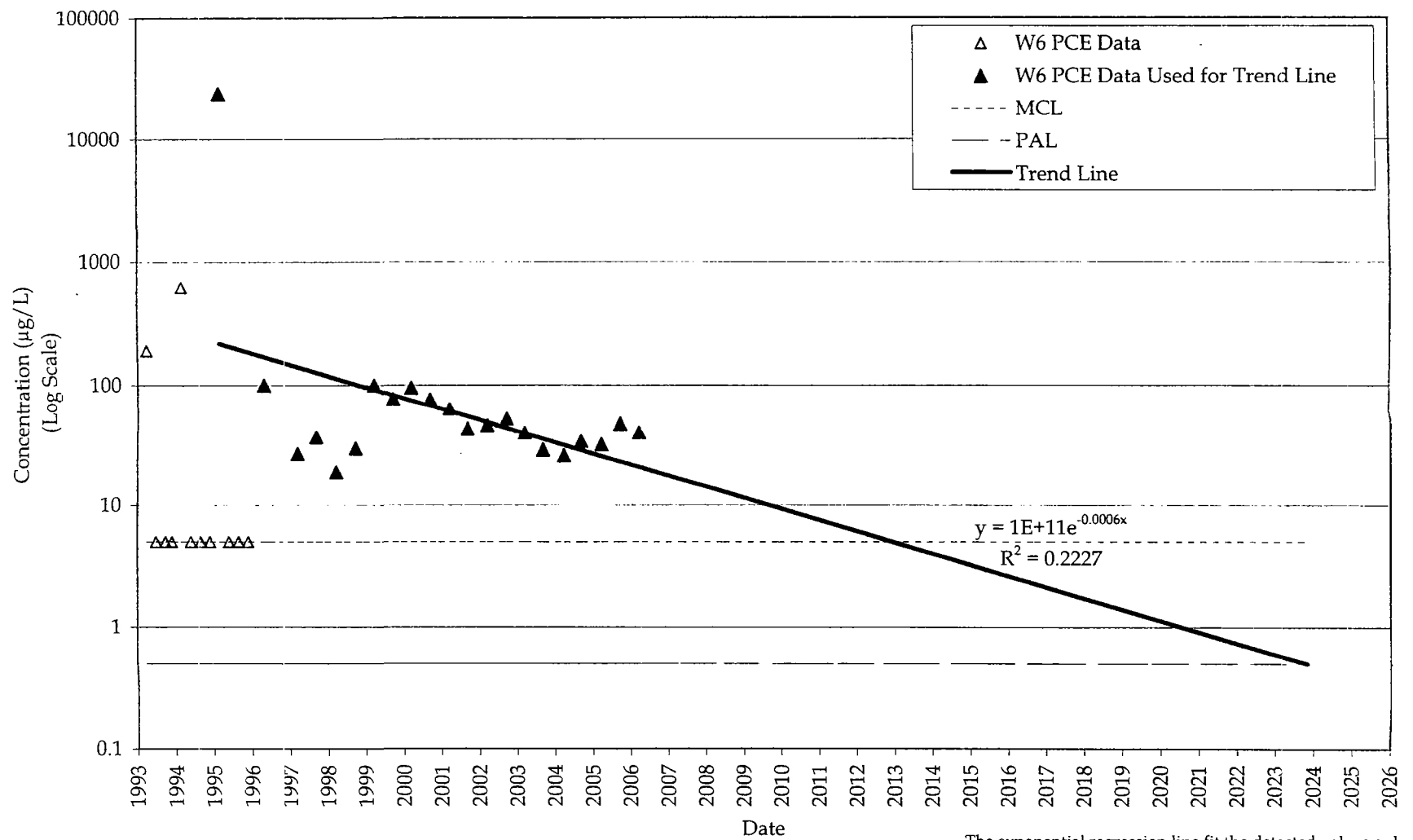
W5 Trichloroethene



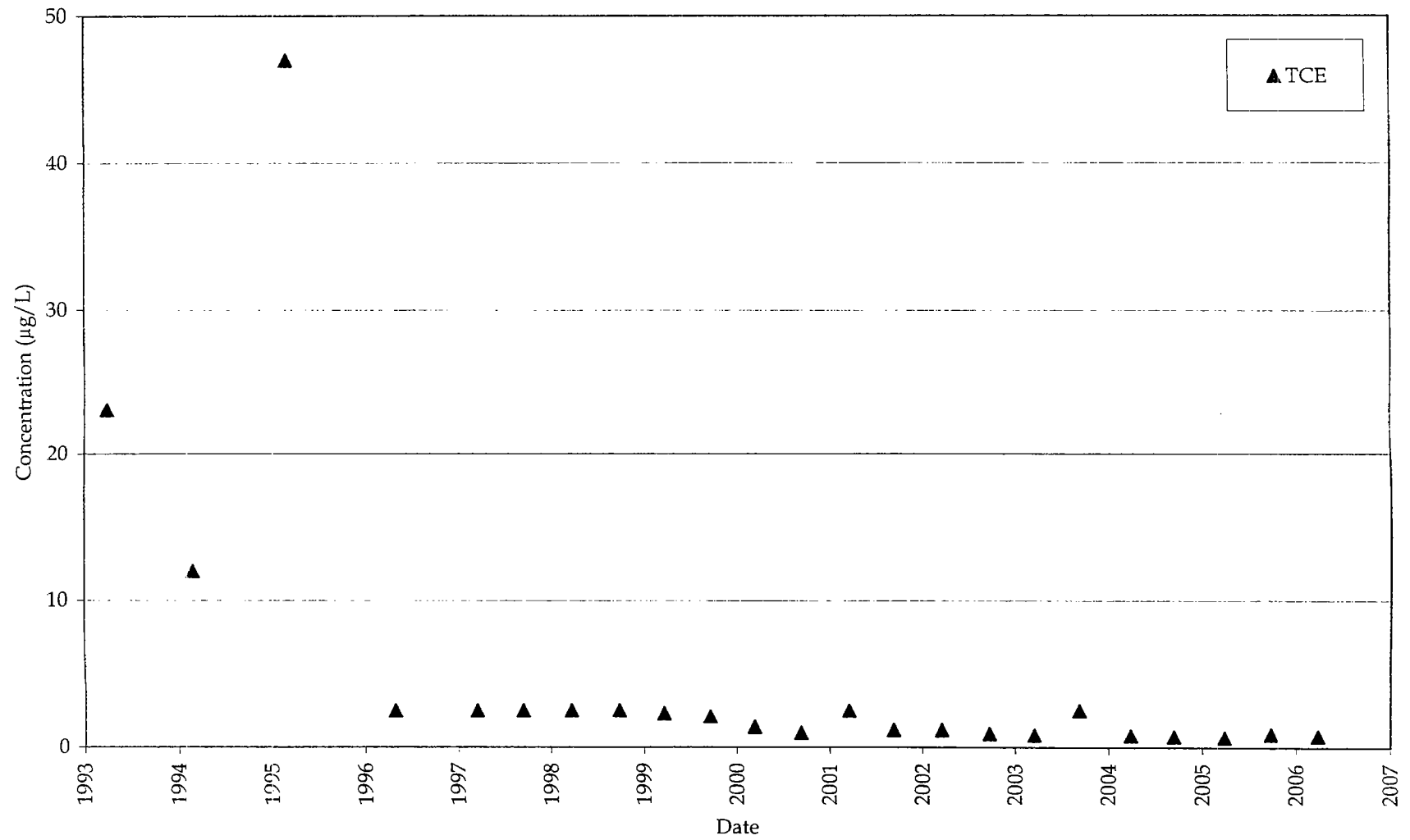
W6 Tetrachloroethene



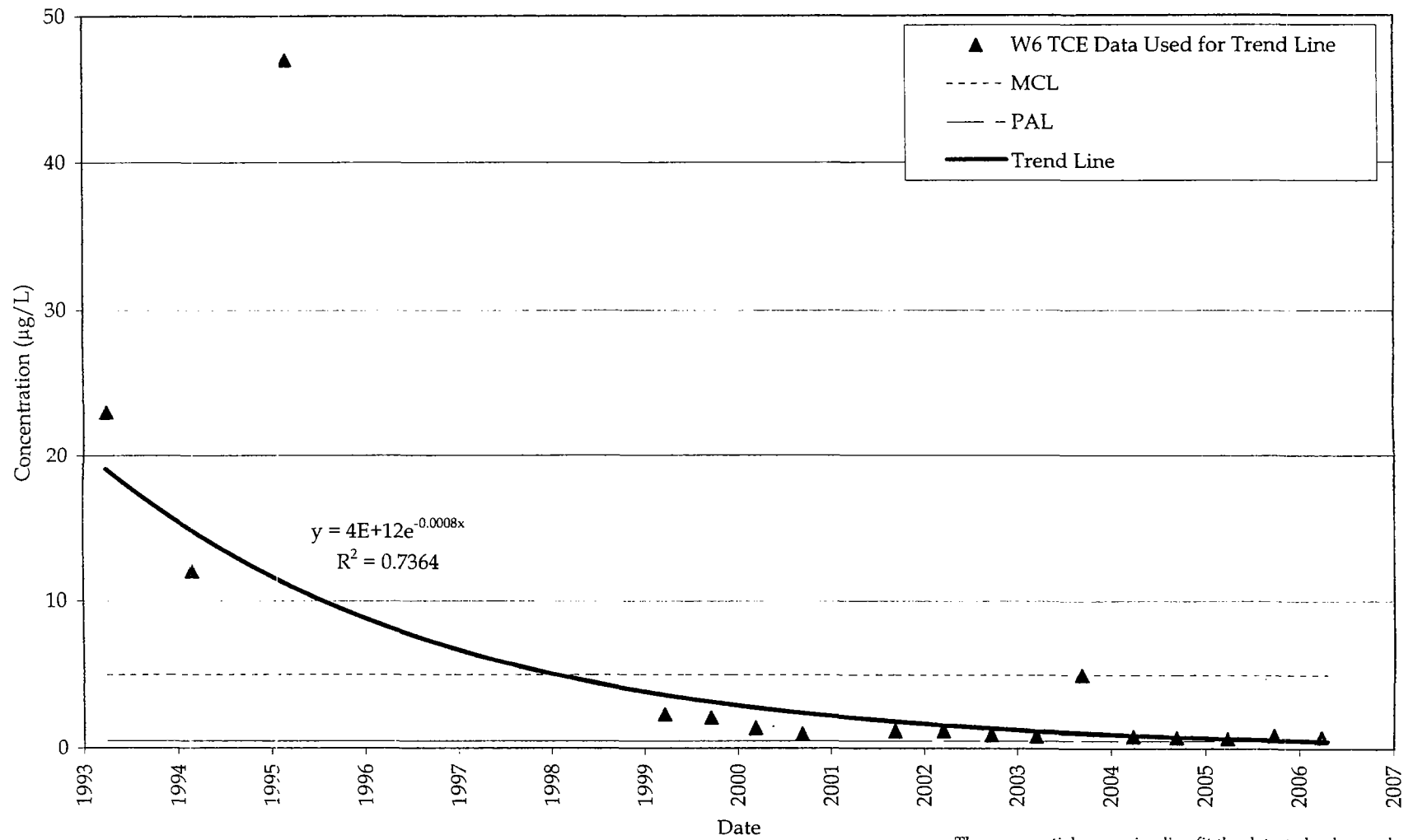
W6 Tetrachloroethene



W6 Trichloroethene

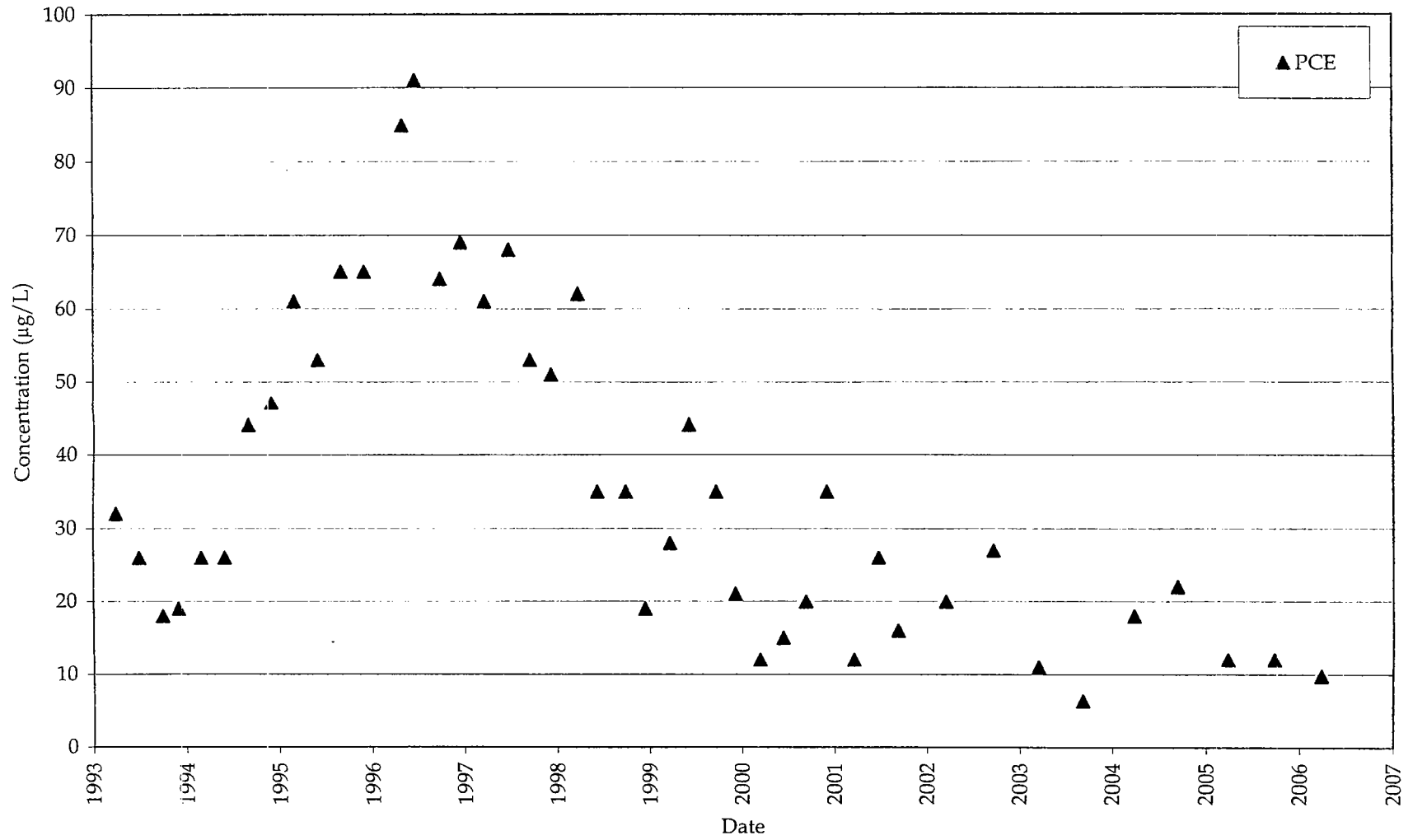


W6 Trichloroethene

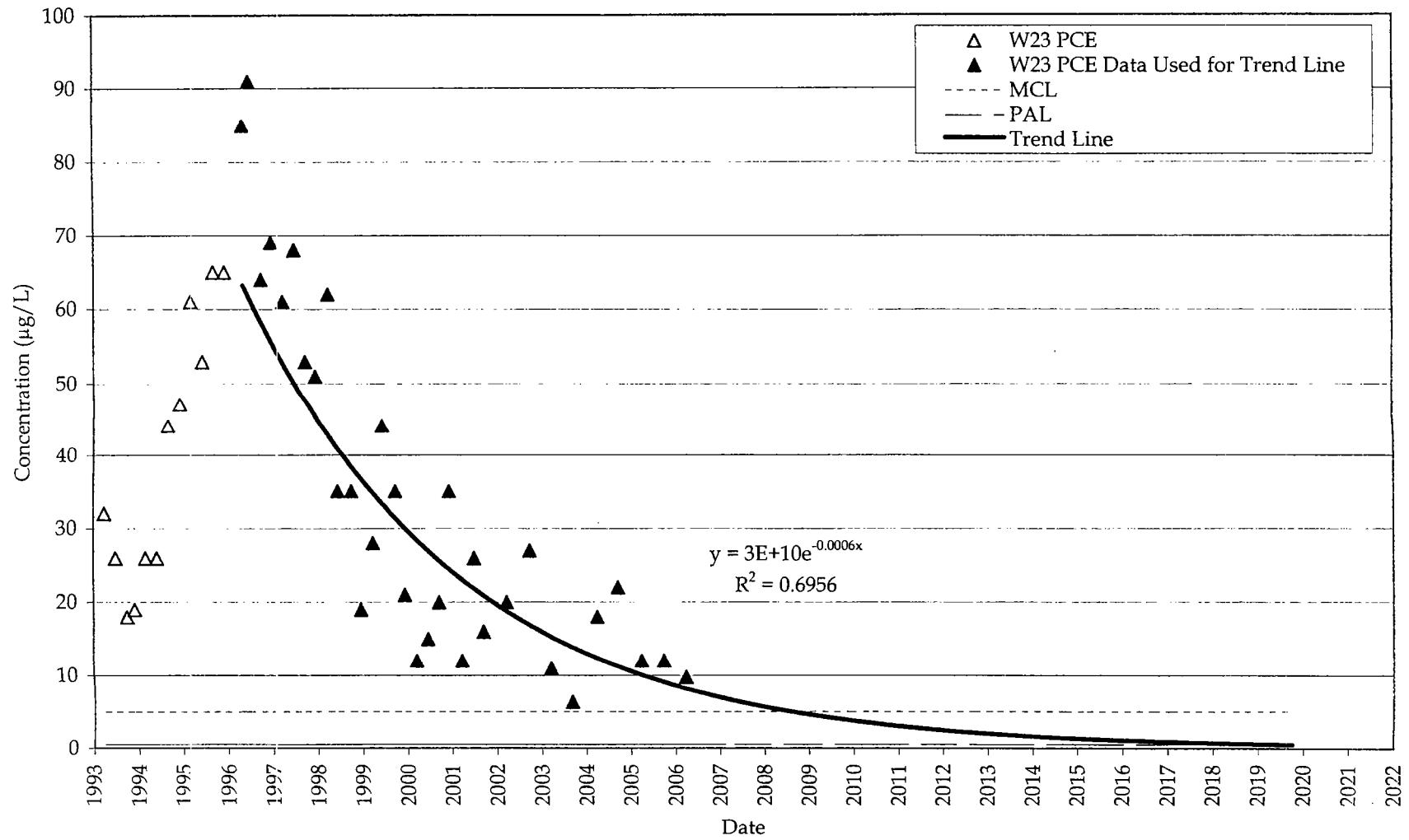


The exponential regression line fit the detected values only.

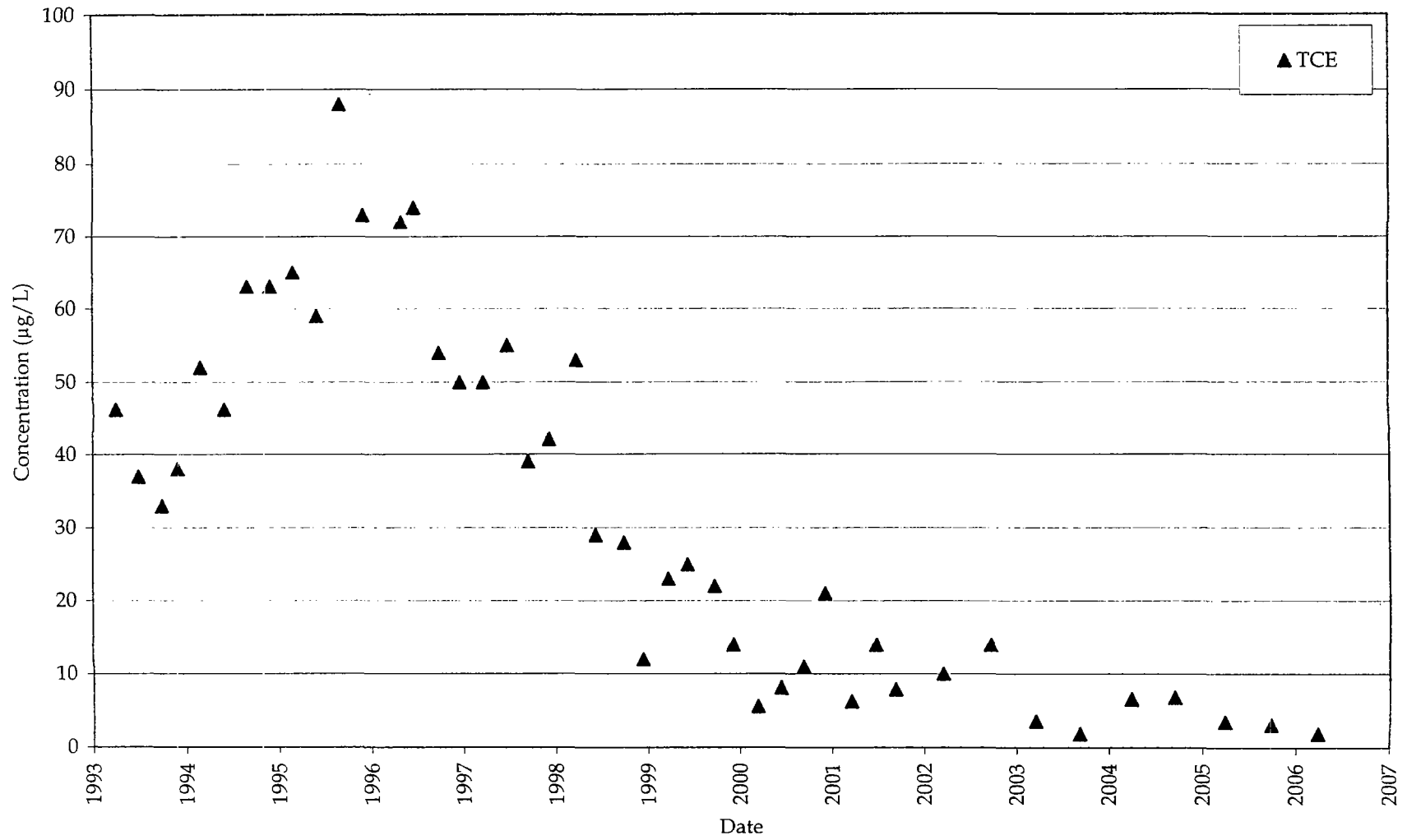
W23 Tetrachloroethene



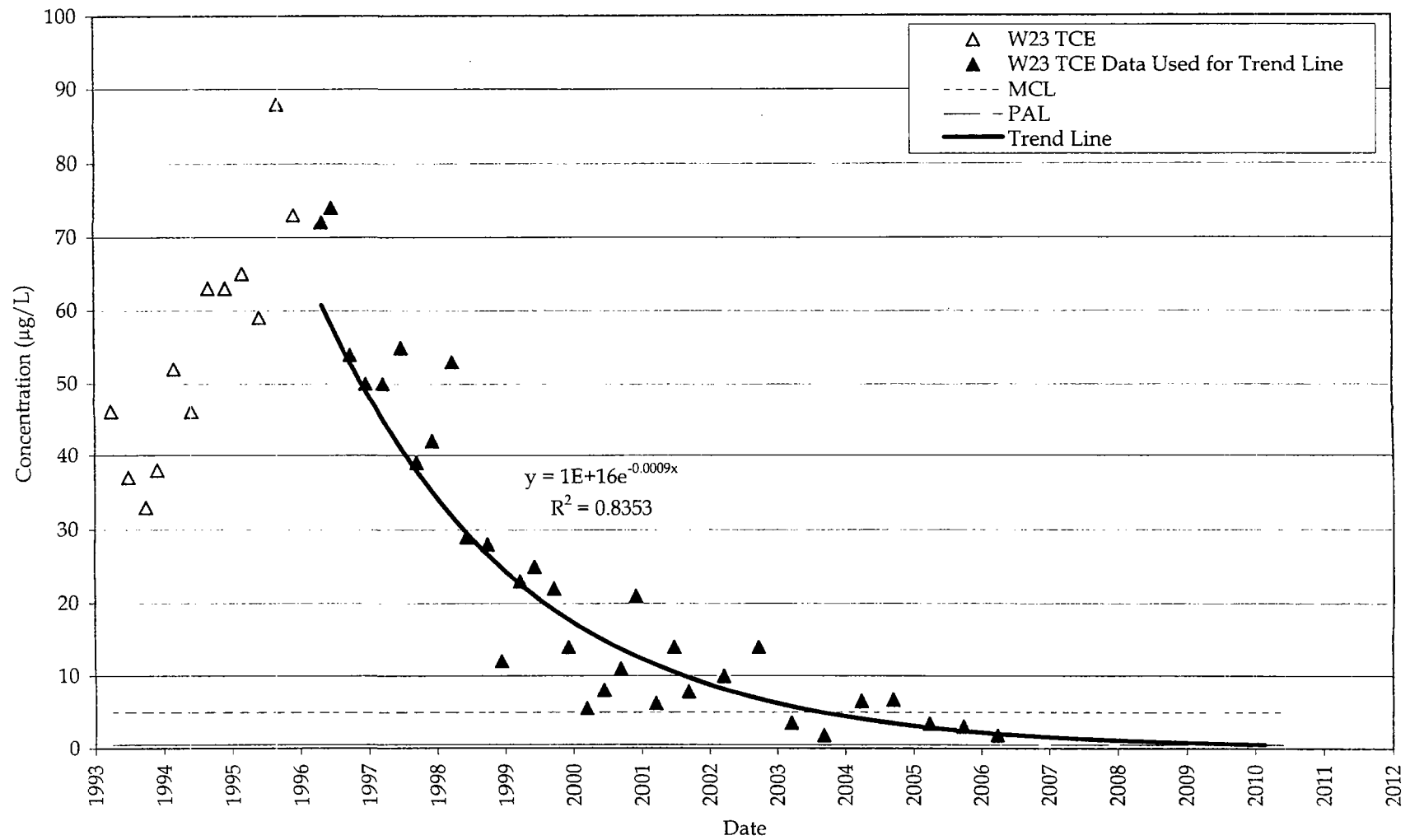
W23 Tetrachloroethene



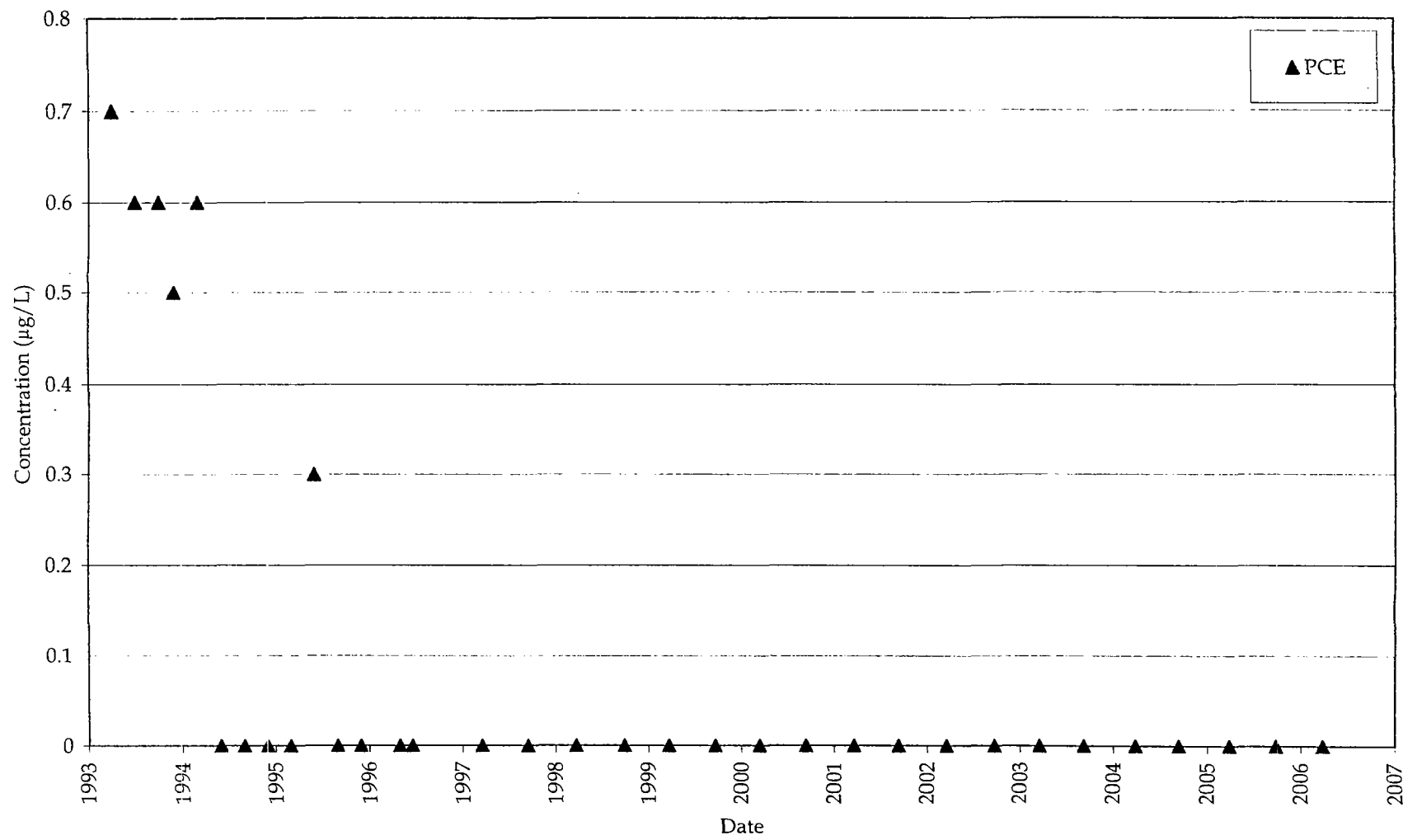
W23 Trichloroethene



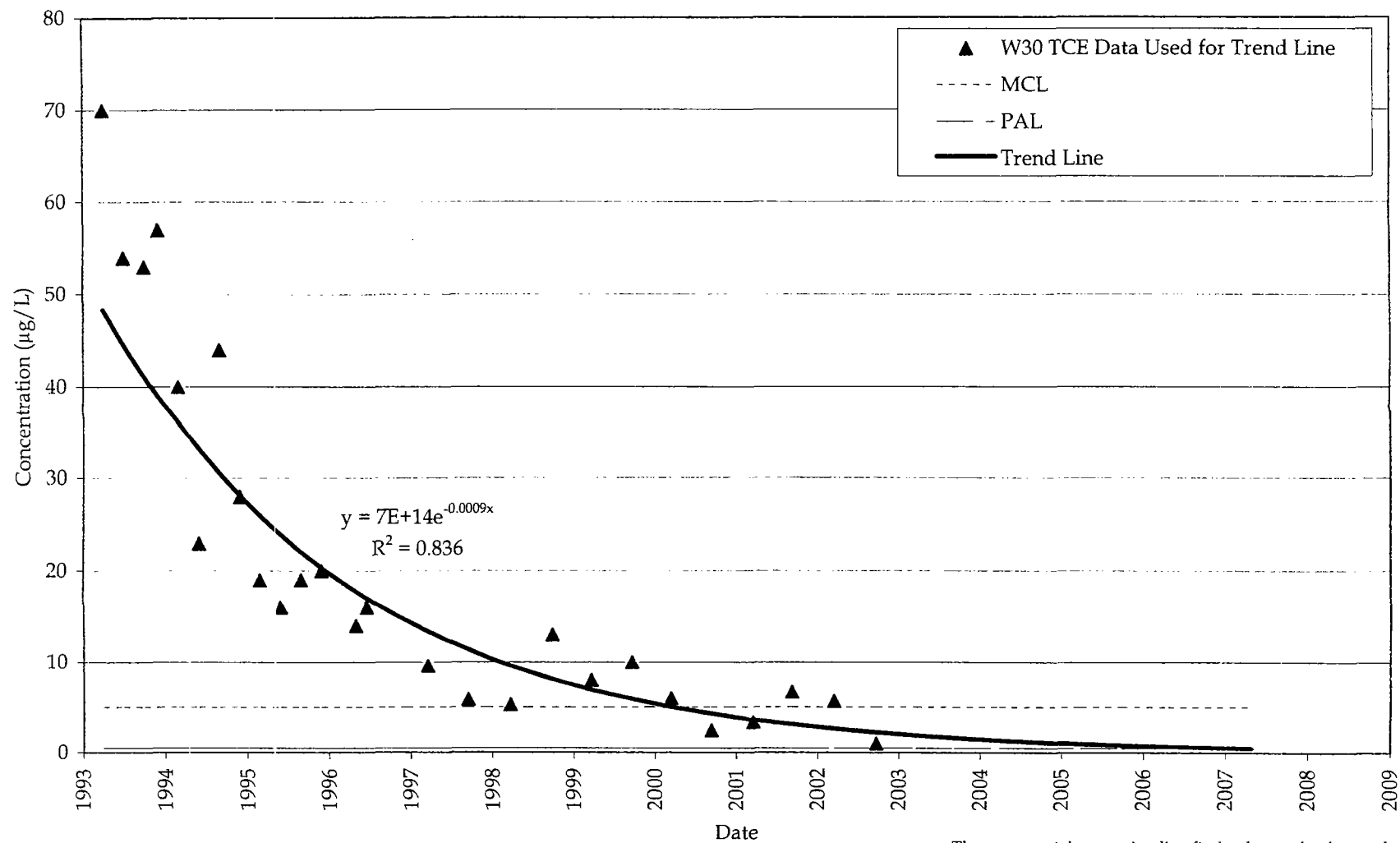
W23 Trichloroethene



W30 Tetrachloroethene



W30 Trichloroethene



The exponential regression line fit the detected values only.